Serial No.: Case No.: To be assigned MC057YP

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## Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

## **Listing of Claims:**

1. (Original) A method of treatment of rheumatoid arthritis by administering, to one in need of such treatment, an effective amount of a phosphodiesterase-4 inhibiting compound.

2. (Currently Amended) A method of treatment of rheumatoid arthritis according to claim 1 by administering, to one in need of such treatment, an effective amount of a compound represented by Formula (I):

**(I)** 

or a pharmaceutically acceptable salt thereof wherein:

R is hydrogen, C<sub>1</sub>-6alkyl, halogen or CF<sub>3</sub>;

 $\label{eq:reconstruction} \begin{array}{c} R^1 \text{ is -} (\text{CH}_2)_m \text{-} \text{CO-N}(R^4) \text{-} \text{S}(\text{O})_2 \text{-} R^5, \text{-} (\text{CH}_2)_m \text{-} \text{CO-N}(R^4) \text{-} \text{S}(\text{O})_2 \text{-} N R^6 R^7, \text{-} (\text{CH}_2)_m \text{-} \text{S}(\text{O})_2 \text{-} N (R^4) \text{-} \text{CO-N} R^6 R^7, \text{ or -C}(\text{OH})(\text{C}_1\text{-}6\text{haloalkyl})_2, \\ \text{wherein m is 0, 1 or 2,} \end{array}$ 

 $\rm R^2$  and  $\rm R^3$  are each independently C1-7alkyl, substituted C1-7 alkyl, wherein the substituent is F, Cl, Br or I, 2-phenethyl or 2-indanyl, optionally mono or di-substituted, wherein the substituents on the benzene ring are each independently halogen, -C1-6alkoxy, -C1-6alkylthio, -CN, -CF3, -C1-6alkyl, -N3, or -CO2H,

 $R^4$  is hydrogen, -C<sub>1-6</sub>alkyl, phenyl, benzyl or 2-phenethyl, optionally mono or disubstituted, wherein the substituents on the benzene ring are independently halo, -C<sub>1-6</sub>alkoxy, -C<sub>1-6</sub>alkylthio, -CN, -CF<sub>3</sub>, -C<sub>1-6</sub>alkyl, -N<sub>3</sub>, or -CO<sub>2</sub>H,

 $R^5$ ,  $R^8$  and  $R^{11}$  are each independently -CF3, -C1-6alkyl, phenyl, benzyl or 2-phenethyl, optionally mono or di-substituted, wherein the substituents on the benzene ring are independently halogen, -C1-6alkoxy, -C1-6alkylthio, -CN, -CF3, -C1-6alkyl, N3, or -CO2H,

 $R^6,\,R^7,\,R^9$  and  $R^{10}$  are each independently hydrogen, or -C1-6alkyl, or

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 $R^6$  and  $R^7$  may be joined to form a saturated 5, 6 or 7 membered heterocycle, said heterocycle containing a heteroatom which is nitrogen and optionally containing an additional hetero atom which is an O or an S atom or  $NR^4$ , and optionally containing a carbonyl group;

HET is pyridyl or imidazolyl, optionally mono-, or disubstituted, wherein the substituents are independently halogen, -C1-6alkyl, -C1-6alkoxy, -C1-6alkylthio, benzyl, 2-phenethyl, -NHCOR $^8$ , -NR $^9$ R $^{10}$ , -NHS(O)<sub>2</sub>R $^{11}$ , OH, -CN, or -CF<sub>3</sub>, or the N-oxides thereof; and

X is N,  $N \rightarrow O$ , or CH.

3. (Currently amended) A method of treatment of rheumatoid arthritis according to claim 1 by administering to one in need of such treatment an effective amount of a compound represented by Formula (II):

(II)

or a pharmaceutically acceptable salt thereof, wherein

S<sub>1</sub>, S<sub>2</sub>, and S<sub>3</sub> are independently H, -OH, halogen, -C<sub>1</sub>-C<sub>6</sub>alkyl, -NO<sub>2</sub>, -CN, or -C<sub>1</sub>-C<sub>6</sub>alkoxy, wherein the alkyl and alkoxy groups are optionally substituted with 1-5 substituents; wherein each substituent is independently a halogen or OH;

R<sub>1</sub> is a H, OH, halogen, or -C<sub>1</sub>-C<sub>6</sub>alkyl, -cycloC<sub>3</sub>-C<sub>6</sub>alkyl, -C<sub>1</sub>-C<sub>6</sub>alkenyl, -C<sub>1</sub>-C<sub>6</sub>alkoxy, aryl, heteroaryl, -CN, -heterocycloC<sub>3</sub>-C<sub>6</sub>alkyl, -amino, -C<sub>1</sub>-C<sub>6</sub>alkylamino, -(C<sub>1</sub>-C<sub>6</sub>alkyl)(C<sub>1</sub>-C<sub>6</sub>alkyl)amino, -C<sub>1</sub>-C<sub>6</sub>alkyl(oxy)C<sub>1</sub>-C<sub>6</sub>alkyl, -C(O)NH(aryl), -C(O)NH(heteroaryl), -SO<sub>n</sub>NH(aryl), -SO<sub>n</sub>NH(heteroaryl), -SO<sub>n</sub>NH(C<sub>1</sub>-C<sub>6</sub>alkyl),

 $-C(O)N(C_0-C_6alkyl)(C_0-C_6alkyl), -NH-SO_n-(C_1-C_6alkyl), -SO_n-(C_1-C_6alkyl), -(C_1-C_6alkyl), -(C_1-$ 

C6alkyl)-O-C(CN)-dialkylamino, or -(C1-C6alkyl)-SOn-(C1-C6alkyl) group, wherein any of

the groups is optionally substituted with 1-5 substituents; wherein each substituent is independently a halogen, -OH, -CN, -C1-C6alkyl, -cycloC3-C6alkyl, -C(O)-O-(C0-C6alkyl), -C(O)-aryloxy, -C1-C6alkoxy,

-(C0-C6alkyl)(C0-C6alkyl)amino, cycloalkyloxy, acyl, acyloxy, -cycloC3-C6alkyl, heterocycloC3-C6alkyl, aryl, heteroaryl, carbamoyl, or -SO $_n$ -(C1-C6alkyl);

A is CH, C-ester, or C-R4;

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R2 and R3 independently is an aryl, heteroaryl, H, halogen, -CN, -C1-C6alkyl, heterocycloC3\_6alkyl, -C1-C6alkoxy, carbamoyl, -C(O)OH,

 $-(C_1-C_6alkyl)-SO_n-(C_1-C_6alkyl), -C(O)N(C_0-C_6alkyl)(C_0-C_6alkyl), or$ 

-C1-C6alkylacylamino group, wherein any of the groups is optionally substituted with 1-5 substituents, wherein each substituent is independently an aryl, heteroaryl, halogen, -NO2, -C(O)OH, -CN, -C1-C6alkyl, -SOn-(C1-C6alkyl), -SOn-(aryl), aryloxy, -heteroaryloxy, C1-C6alkoxy, N-oxide, -C(O)-heterocycloC3-C6alkyl, -NH-cycloC3-C6alkyl, amino, -OH, or -(C0-C6alkyl)(C0-C6alkyl)amino, -C(O)-N(C0-C6alkyl)(C0-C6alkyl) substituent group, wherein each substituent group independently is optionally substituted with -OH, C1-C6alkoxy, -C1-C6alkyl, -cycloC3-C6alkyl, aryloxy, -C(O)OH, -C(O)O(C1-C6alkyl), halogen, -NO2, -CN, -SOn-(C1-C6alkyl), or -C(O)-N(C0-C6alkyl)(C0-C6alkyl);

one of R<sub>2</sub> and R<sub>3</sub> must be an aryl or heteroaryl, optionally substituted; when R<sub>2</sub> and R<sub>3</sub> are both an aryl or heteroaryl, then R<sub>2</sub> and R<sub>3</sub> may be optionally connected by a thio, oxy, or (C<sub>1</sub>-C<sub>4</sub>alkyl) bridge to form a fused three ring system; R<sub>4</sub> is an aryl, -C<sub>1</sub>-C<sub>6</sub>alkyl, heteroaryl, -CN, carbamoyl,

-(C<sub>1</sub>-C<sub>6</sub>alkyl)-SO<sub>n</sub>-(C<sub>1</sub>-C<sub>6</sub>alkyl), -C(O)N(C<sub>0</sub>-C<sub>6</sub>alkyl)(C<sub>0</sub>-C<sub>6</sub>alkyl), or -C<sub>1</sub>-C<sub>6</sub>alkylacylamino group, wherein any of the groups is optionally substituted with 1-5 substituents, wherein each substituent is independently a -CN, halogen, -C(O)(C<sub>0</sub>-C<sub>6</sub>alkyl),

-C(O)O(C<sub>0</sub>-C<sub>6</sub>alkyl), -C<sub>1</sub>-C<sub>6</sub>alkyl, -SO<sub>n</sub>-(C<sub>1</sub>-C<sub>6</sub>alkyl), -OH, C<sub>1</sub>-C<sub>6</sub>alkoxy, or -(C<sub>0</sub>-C<sub>6</sub>alkyl)(C<sub>0</sub>-C<sub>6</sub>alkyl)amino, group;

n is independently 0, 1, or 2; and R<sub>2</sub> or R<sub>3</sub> may optionally be joined to R<sub>4</sub> by a bond to form a ring.

4. (Original) The method of claim 2, wherein said compound is represented by

5. (Original) The method of claim 3, wherein said compound is represented by

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6. (Original) A method of treatment of rheumatoid arthritis by administering to one in need of such treatment an effective amount of N-(3,5-dichloropyrid-4-yl)-3-cyclopropylmethoxy-4-difluoromethoxybenzamide.

7. (Original) A method of treatment of rheumatoid arthritis by administering, to one in need of such treatment, an effective amount of a compound represented by Formula (III):

$$R^{5}$$
 $R^{4}$ 
 $N$ 
 $N$ 
 $R^{7}$ 
 $R^{8}$ 
 $R^{8}$ 
 $R^{3}$ 

(III)

or a pharmaceutically acceptable salt thereof, wherein R is H, -C<sub>1</sub>-6alkyl or -C<sub>3</sub>-6cycloalkyl;

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 $R^1 \text{ is H, or a --}C_{1-6}alkyl, -C_{3-6}cycloalkyl, -C_{1-6}alkoxy, -C_{2-6}alkenyl, -C_{3-6}alkynyl, -C(O)-C_{1-6}alkyl, -C(O)-aryl, -(C_{0-6}alkyl)-SO_{n}-(C_{1-6}alkyl), -(C_{0-6}alkyl)-SO_{n}-(C_{1-6}alkyl), -(C_{0-6}alkyl)-SO_{n}-(C_{1-6}alkyl), phenyl, heteroaryl, or heterocycloC_{3-7}alkyl group, wherein any of the groups is optionally substituted with 1-3 independent -C_{1-6}alkyl, -C_{1-6}alkoxy, OH, -N(C_{0-6}alkyl)(C_{0-6}alkyl), -(C_{0-6}alkyl)-SO_{n}-(C_{1-6}alkyl), nitro, CN, =N-O-C_{1-6}alkyl, -O-N=C_{1-6}alkyl, or halogen substituents;$ 

R<sup>2</sup> is absent, H, halogen, -C<sub>1</sub>-6alkyl, -C<sub>3</sub>-6cycloalkyl, -C<sub>1</sub>-6alkyl(C<sub>3</sub>-6cycloalkyl)(C<sub>3</sub>-6cycloalkyl), -C<sub>1</sub>-6alkoxy, phenyl, heteroaryl, heterocycloC<sub>3</sub>-7alkyl, nitro, CN, =N-O-C<sub>1</sub>-6alkyl, -O-N=C<sub>1</sub>-6alkyl, -N(C<sub>0</sub>-6alkyl)(C<sub>0</sub>-6alkyl), -NHSO<sub>n</sub>-(C<sub>1</sub>-6alkyl), -NHC(O)-C<sub>1</sub>-6alkyl, -NHC(O)-aryl, -C(O)-C<sub>1</sub>-6alkyl, -C(O)-O-C<sub>1</sub>-6alkyl, -C<sub>1</sub>-6alkyl(=N-OH), -C(N=NOH)C<sub>1</sub>-6alkyl, -C<sub>0</sub>-6alkyl(oxy)C<sub>1</sub>-6alkyl-phenyl, -SO<sub>n</sub>NH(C<sub>0</sub>-6alkyl), or -(C<sub>0</sub>-6alkyl)-SO<sub>n</sub>-(C<sub>1</sub>-6alkyl), wherein the phenyl, heteroaryl or heterocycloC<sub>3</sub>-7alkyl is optionally substituted with halogen, -C<sub>1</sub>-6alkyl, -C<sub>1</sub>-6alkoxy, hydroxy, -N(C<sub>0</sub>-6alkyl)(C<sub>0</sub>-6alkyl), or -C(O)-O-C<sub>1</sub>-6alkyl, and any alkyl is optionally substituted with 1-6 independent halogen or -OH substituents;

n is 0, 1, or 2;

R<sup>3</sup> is absent, H, OH, -N(C<sub>0</sub>-6alkyl)(C<sub>0</sub>-6alkyl), halogen or C<sub>1</sub>-6alkyl, wherein any alkyl is optionally substituted with 1-6 independent halogen, OH, or -N(C<sub>0</sub>-6alkyl)(C<sub>0</sub>-6alkyl) substituents;

 $R^4$ ,  $R^5$ ,  $R^6$ , and  $R^7$  each independently is H, halogen,  $-C_{1\text{-}6}$ alkyl,  $-C_{1\text{-}6}$ alkoxy,  $-SO_{n}$ – $(C_{1\text{-}6}$ alkyl), nitro, CN, or  $-N(C_{0\text{-}6}$ alkyl)( $C_{0\text{-}6}$ alkyl), and any alkyl is optionally substituted with 1-6 independent halogen or -OH substituents; and

 $R^8$  is phenyl, pyridyl, pyrimidyl, indolyl, quinolinyl, thienyl, pyridonyl, oxazolyl, oxadiazolyl, thiazolyl, thiadiazolyl, or imidazolyl; or oxides thereof when  $R^8$  is a heteroaryl; or H,  $-C_1$ -6alkyl, or  $-C_3$ -6cycloalkyl, and any alkyl is optionally substituted with 1-6 independent halogen,  $-N(C_0$ -6alkyl)( $C_0$ -6alkyl),  $-N(C_3$ -7cycloalkyl)( $C_0$ -6alkyl),  $-N(C_3$ -7cycloalkyl)( $C_3$ -7cycloalkyl), N-heterocyclo $C_4$ -7alkyl,  $-SO_n$ -( $C_1$ -6alkyl),  $-SO_n$ -(aryl), or  $-C_1$ -0H substituents.

## 8. (New) A compound according to claim 7 wherein

R is hydrogen; R<sup>1</sup> is cyclopropyl; R, R<sup>4</sup> R<sup>5</sup>, R<sup>6</sup> and R<sup>7</sup> are each hydrogen; and R<sup>8</sup>(R<sup>2</sup>)(R<sup>3</sup>) is 3-pyridine N-oxide.